

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference P/75885.WO/B	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB 03/00325	International filing date (day/month/year) 27.01.2003	Priority date (day/month/year) 30.01.2002
International Patent Classification (IPC) or both national classification and IPC G07F15/00		
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1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 29.08.2003	Date of completion of this report 15.06.2004
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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/00325

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-12 as originally filed

Claims, Numbers

2-26 received on 26.03.2004 with letter of 23.03.2004

1 received on 21.05.2004 with letter of 21.05.2004

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1
Inventive step (IS)	Yes: Claims	
	No: Claims	1
Industrial applicability (IA)	Yes: Claims	1
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

D1: WO 01 92910 A (WALKER NIGEL JOHN ;WHELAN BRIAN (GB)) 6

December 2001 (2001-12-06)

D2: WO 01 46916 A (AXCESS INC) 28 June 2001 (2001-06-28)

2. Independent claim 1:

2.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

a passenger check-in and monitoring system comprising a memory device (3, 4) associated with an item (electronic tag, see e.g. page 5, last paragraph - page 6, first paragraph) carried by an airport user or staff member, said device containing all appropriate information relating to the airport user or member of staff, a data storage device (page 12, lines 7-11) containing information relating to all airport users and members of staff and a plurality of transmitter devices (2, 10, 16) operable to allow exchange of information between said memory device and said data storage device, wherein an expected behavioural model of airport user movement or airport staff movement is stored in the data storage device against which airport user or airport staff behaviour is monitored (page 12, lines 24-27; page 17, last two paragraphs; page 20, second and third paragraph).

The subject-matter of claim 1 can therefore not be regarded to be novel (Article 33(2) PCT).

The different embodiments or applications cited above from document D1 (page 12, lines 24-27; page 17, last two paragraphs; page 20, second and third paragraph) relating to the last feature of claim 1, clearly represent cases where an expected behavioural model is stored in the data storage device against which airport user or airport staff behaviour is monitored:

a) page 12, lines 24-27: D1 states that 'if a passenger does not arrive at the correct (expected) departure gate promptly, the system can determine (monitor) the passenger's location, allowing airport staff to find the missing passenger

quickly and escort him to the departure gate.' In this embodiment the behavioural model of an airport user is that he is expected to move from the check-in to the departure gate such that he arrives at the scheduled departure time at the gate. This is monitored by the system and if it is recognised that an arrival of the airport user in time is not the case appropriate measures are taken. Since all the data (airport user and corresponding tag identifier, departure gate and time) are stored in the computer system of the airport, it is implicitly clear for the person skilled in the art, that the monitoring is done automatically by the computer system. Moreover this is evident, since today air planes have more than 100 or 200 passengers and it would not be possible to manually check the arrival time of each passenger. It is therefore clear when reading D1 that the monitoring of the behaviour against the stored behavioural model is done automatically by the system.

Finally it is stated that even the monitoring of the expected arrival time itself anticipates the formulation of claim 1.

b) page 17, last two paragraphs: Again D1 states that 'the location system may be combined with data stored by the central computer system to estimate the travelling time between a current location and a predetermined point. Such a system will allow a passenger to be notified that he is due at the departure gate in adequate time for him to arrive at the departure gate without being late.' Thus it is explicitly stated that the system in D1 stores behavioural model data in the central computer system (current location, predetermined point, estimated travel time for each passenger). Further it is clear from the expression that the passenger is notified in time to be able to arrive at the scheduled time at the gate, that the system monitors the actual behaviour against the stored behavioural model. This is necessary in order to be able to notify the passenger.

In the last paragraph it is disclosed to monitor whether a child is within an expected range or distance for informing parents. In this case the behavioural model of airport user movement is that the child is allowed to move within a certain distance from the parents.

c) page 20, third paragraph: D1 discloses that the system can also be used in theme parks e.g. for queue management. There a person approaching an attraction/queue is recognized and the person is informed on current queue times accordingly. That means that the expected behaviour of user movement, i.e. of approaching the next attraction, is stored in the system and a monitoring against the actual behaviour takes place.

- 2.2 Further it is stated that the subject-matter of claim 1 is also rendered obvious by the combination of documents D1 and D2:

In case one doubts that document D1 discloses that an expected behavioural model of airport user movement is stored in the data storage device against which airport user or airport staff behaviour is monitored, the problem to be solved by the present invention may therefore be regarded as how to provide a passenger check-in and monitoring system where unexpected or unallowed movement can be tracked or recognized.

When starting from a passenger check-in and monitoring system according to D1 and confronted with the cited problem, the person skilled in the art would turn to document D2 which solves the problem of tracking visitors by monitoring and location services with a wireless system (see page 5, line 16 - page 6, line 6). In D2 it is taught that a park management control system stores and updates continuously guest profiles. Further it is disclosed that a activity monitor service logs and reports spending, activity data for an individual guest or a group (e.g. page 18, last paragraph - page 19, first paragraph). Thus it is possible to monitor children who are not expected to leave the park's premises, that means against a behaviour model of their allowed or expected movement (see. e.g. page 9, lines 24-27 or page 17, lines 24-31). It is also possible to monitor access to attractions or spending of money (see page 17, lines 5-13). Thus following the teaching of D2 the person skilled in the art would arrive at the subject-matter of the present claim 1.

The subject-matter of claim 1 does therefore also not involve an inventive step (Article 33(3) PCT).

3. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.
4. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

CLAIMS

1. A passenger check-in and monitoring system comprising a memory device associated with an item carried by an airport user or staff member, said device containing all appropriate information relating to the airport
5 user or member of staff, a data storage device containing information relating to all airport users and members of staff and a plurality of transmitter devices operable to allow exchange of information between said memory device and said data storage device wherein an expected behavioural model of airport user movement or airport staff movement is
10 stored in the data storage device against which airport user or airport staff behaviour is monitored.
2. A system according to claim 1 in which the behavioural model is updated automatically or manually as desired.
3. A system according to claim 1 or claim 2 wherein the expected
15 behaviour model can be measured using one or more of the following mathematical parameters:
 - Average time spent in a particular zone;
 - Normal movement sequence point to point within the airport with respect to flight time and gate number for passengers;
 - 20 Average time required to get from current point in the airport to flight gate; and
 - Normal movement sequence point to point with respect to work duty behavioural patterns for airport staff.
4. A system according to any preceding claim wherein any deviations
25 from expected behaviour will be determined by the data storage device and can generate an alert in appropriate circumstances.
5. A system according to claim 4 wherein alerts are assessed or scored by the data storage device and subject to tolerance filters to minimise false alarms.

6. A system according to claim 5 wherein tolerance parameters that are amended as appropriate for each kind of deviation from expected behaviour.

7. A system according to any preceding claim wherein the data storage device can discriminate between at least the following categories of airport user:

Passenger, adult, male;

Passenger, adult, female;

Passenger; child, male;

10 Passenger, child, female; and

Airport staff, job type.

8. A system according to claim 7 wherein each category of airport user could have their own expected behavioural pattern stored within the central data storage device.

15 9. A system accordingly to any preceding claim wherein the data storage device is set to track targeted airport users continually.

10. A system according to claim 9 wherein targeted airport users include at least the following:

Airport users known to the authorities;

20 Airport users in high risk categories; and

Passengers who may require additional help during their transit through the airport.

11. A system according to any preceding claim wherein passenger movements are correlated with the expected behaviour model in the data storage device to identify passengers whose movements indicate that they may be lost.

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12. A system according to claim 11 wherein a security alert is also generated.

13. A system according to any preceding claim wherein the memory device comprises an electronic tag.

5 14. A system according to Claim 13 wherein the electronic tag comprises a radio frequency tag.

15. A system according to any preceding claim wherein the memory device is formed as an integral part of a passenger travel ticket.

10 16. A system according to any one of Claims 13 to 15 wherein the memory device is formed as an integral part of a passenger boarding card.

17. A system according to any one of Claims 13 to 16 wherein the memory device is formed as an integral part of a airport staff identity badge.

15 18. A system according to any of the Claims 13 to 17 wherein the memory device is formed as an integral part of a personal identity item carried by an airport user or member of staff.

19. A system according to any preceding Claim wherein data is stored in said memory device in digital form.

20 20. A system according to any preceding Claim wherein the data storage device comprises a microprocessor based system or computer system upon which data related to all available flights and details of passengers booked to travel on such flights is stored.

25 21. A system according to any preceding Claim wherein the data storage device comprises a microprocessor based system or computer system upon which data related to all airport staff, their duties and their authorised access to airport locations is stored.

22. A system according to any preceding Claim wherein the data storage device comprises a microprocessor based system or computer

system upon which data related to all airport locations, zones and facilities is stored.

23. A system according to Claim 14 wherein the transmitter devices comprise radio frequency antennas.

5 24. A system according to any preceding claim wherein the data storage device is linked to an input device in the form of a computer terminal with which data stored in the data storage device can be interrogated or amended.

10 25. A system according to any preceding claim wherein the data storage device generates a virtual queue for check-in in accordance with each passenger's priority.

26. A system according to any preceding claim in which said transmitter devices and data storage device comprise a neural network.